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Contributions to Canadian Bryology.—No. 2.

By John Macoun.

(Continued from Vol. xvi. 98).

List of Mosses collected in British Columbia and the Rocky Mountains during the Summers of 1885-'87-'89.

Determinations and descriptions of new species by Dr. Nils Conrad Kindberg, Linkoping, Sweden.

Andræa petrophila, Ehrh. Not uncommon on rocks on the Gold Range, B. C. and Mounts Benson and Arrowsmith, Vancouver Islands.

A. Huntii, Limpr. On rocks on Mount Benson, near Nanaimo, Vancouver Island, June 8, 1887.

Andræa Macounii, Kindb. (n. sp.).

Stem elongate, about 5 cm. high. Tufts dark brown. Leaves narrow, from the broader base long-acuminate, distinctly papillose, more or less denticulate, sometimes to the middle, more or less curved, the uppermost falcate; cells uniform, sub-quadrate; costa narrow, sometimes in the uppermost leaves excurrent.

No. 382—A lovely species of a rich dark brown or brick-red color growing in great profusion on sloping rocks by small rivulets at an altitude of 6,700 feet on the Gold Range, north of Griffin Lake, British Columbia, August 8, 1889.

Gymnostomum curvirostrum, Hedw. On limestone rocks around springs and by waterfalls, Peace River, Rocky Mtns., Lat. 56°.

GYMNOSTOMUM (Hymenostylium) PLATYPHYLLUM, Kindb. (n. sp.).

Dicœcious. Plants green, not glossy. Stem not papillose, sparingly radiculose, leaves decurrent, distinctly papillose, short, obtuse, oblong-lanceolate, the comal greater, one border recurved often all around; costa greenish-yellow, very papillose.

Collected on the face of a small water-fall in the brook that flows into the Thompson, just west of Kamloops, less than half a mile south of the C. P. Ry., June 16, 1889.

Weissia viridula, Brid. On earth at Morley, Rocky Mountains.

Dicranoweissia crispula, Lindb. On large boulders Cathedral Mountain, Rocky Mountains.

D. cirrhata, Lindb. Abundant on logs and stones on Vancouver Island and at Hastings, B. C.

Cynodontium polycarpum, Schimp. Common on rocks in the mountains of Vancouver Island, North Arm of Burrad Inlet, B. C.

C. strumiferum, De Not. (*C. polycarpum*, Schimp., var. *strumiferum*, Lesq. and James, 69.) On rocks on the summit of Mount Benson, Vancouver Island.

C. virens, Schimp. Abundant on wet rocks, Kicking Horse Lake, Rocky Mountains, and on the summit of the Gold Range, B. C.

Var. *serratum*, Bruch and Schimp. In wet gravel along mountain streams at Griffin Lake and North Thompson River, B. C.

C. Wahlenbergii, C. Haertm. On the mountains north of Griffin Lake, Gold Range, B. C.

Dichodontium flavescens, Lindb. (*D. pellucidum*, var. *serratum*, Lesq. and James, p. 62.) Wet rocks, Comox, Vancouver Island; on wet sandstone rocks in a railroad cutting at Hastings, Burrad Inlet, B. C.

D. pellucidum, Schimp. In gravel in the bed of Eagle River, Griffin Lake, and in Blackwater River, B. C.

Trematodon ambiguus, Hornsch. On wet loam at Craigallachie, Eagle River, B. C.

Angstræmia longipes, Bruch and Schimp. On wet sand in the bed of Six Mile Creek, Selkirk Mountains, B. C.

Dicranella crispa, Schimp. On turned up stumps, Beaver Creek, Selkirk Mountains, also McLeod's Lake, Lat. 55°, B. C.

D. Grevilleana, Schimp. On earth, dry bed of Six Mile Creek, Selkirk Mountains, B. C.

D. Schuberi, Schimp. In limestone springs, Lake Mara, Sicamous, and summit of Gold Range, B. C.

D. varia, Schimp. Common on mud banks along the Athabasca River at Fort Assiniboine.

D. parvula, Kindb. Bull. Torr. Bot. Club, xvi. p. 91. On earth, on the mountains north of Kicking Horse Lake, Rocky Mountains, alt. 7,500 feet, 21st July, 1885.

D. rufescens, Schimp. On wet sandstone rocks in a cutting at Hastings and by a brook at Yale, B. C.

D. heteromalla, Schimp. On turned up stumps, and loamy earth in woods, B. C.; common.

Dicranum Starkii, Web. and Mohr. Common on Mounts Benson, Mark and Arrowsmith, Vancouver Island; also on the Gold Range, Griffin Lake, B. C.; alt. 7,000 feet.

D. Blyttii, Bruch and Schimp. On steep rocks, Mount Benson, Vancouver Island, and on rocks at Sicamous, B. C.

D. strictum, Schleich. On rotten logs in woods, Vancouver Island; abundant at Hastings, Agassiz and Yale, B. C.; and Peace River, Lat. 56°.

D. viride, Schimp, var. GROSIFERUM, Kindb. n. var.
On the base of trees at Agassiz, B. C., May 19, 1889.

D. flagellare, Hedw. On old logs at Sicamous, B. C.

D. albicans, Bruch and Schimp. In crevices of rocks, on the summit of the Gold Range, at Griffin Lake, B. C.; alt. 7,000 feet.

D. congestum, Brid. (*D. fuscescens*, Lesq. and James in part, 72.) Common on earth in woods at Hastings, Agassiz, Yale and Sicamous, B. C.; also at Morley, Rocky Mountains.

D. fuscescens, Turn. On logs in the Rocky and Selkirk Mountains; also Gold Range, B. C.; and at Cameron Lake, Vancouver Island.

D. elongatum, Schwaegr. On earth near Victoria, Vancouver Island; also in woods, Peace River.

D. Muhlenbeckii, Bruch and Schimp. On rocks, Mount Queest, Shuswap Lake, Cache Creek, and Blackwater River, B. C.

D. rhabdocarpum, Sulliv. On damp rocks, Lake Mara, Sicamous, B. C.

D. fragilifolium, Lindb. On logs near Victoria, Vancouver Island; also at Yale, B. C.; Little Slave Lake, Lat. 55°.

D. ANGUSTIFOLIUM, Kindb. (n. sp.).

Stem about 5 cm. high, radiculose. Leaves shining, subuliform, not undulate, very narrow, 1-5 cm. long, denticulate to ⅓ or from the middle upward, not crispate, brittle, straight or patent; cells very porose and narrow; outer alar cells brown, inner hyaline; costa smooth at the back, faint and very narrow (about $\frac{1}{10}$ of the leaf near the base) scarcely excurrent. Capsul straight, long-beaked. Allied to *D. subulifolium*, but differing in the longer leaves, longer leaf-cells and doubly narrower, not excurrent costa. On logs and damp rocks, frequent in British Columbia from the coast to the Gold Range, 1889.

D. scoparium, Hedw. Not uncommon on logs in the Rocky Mountains and westward.

Var. *scopariforme*, Kindb., Bull. Torr. Bot. Club, xvi. 92. Buffalo Lake, Athabasca; also in the Gold Range, B. C.

D. majus, Turn. On logs, near Victoria, Vancouver Island.

D. palustre, Bruch and Schimp. On damp rocks, North Arm, Burrad Inlet, B. C.

SUB-SP. COLUMBIÆ, Kindb.

Cæspitose, tomentose and yellowish green. Leaves open-erect, undulate above, ovate-lanceolate, obtuse or short-acute, serrate at the back and on the borders above; the uppermost cells oblong, the others linear, except the quadrate ones at the angles; costa narrower, disappearing below the apex. Capsule solitary, narrow-cylindric, curved, striate, pale brown, not strumose; beak as long as the capsule; pedicel yellow. Dicœcious.

Differs from the true *D. Bonjeani*, De Not. (*D. palustre*, Schimp.) principally in the leaves being blunt, serrate below the middle, the costa serrate also below the middle and the capsule without a neck. Damp woods by the borders of ponds, Cedar Hill, near Victoria, Vancouver Island; and on Cache Creek Mountains, B. C. Alt. 2500 feet, May 25, 1875.

D. CANADENSE, Kindb. n. sp.

Size robust; habit of *D. majus* or *D. Drummondii.* Stem radiculose. Leaves indistinctly undulate, long-acuminate, denticulate at the acumen; inner basal cells hyaline, the alar orange, the other cells sublinear and porose; costa smooth or slightly rough, not excurrent, broad at the base, narrow above. Capsule short-beaked, curved, finally costate and blackish.

On rotten logs at Moodyville, Burrad Inlet, B. C. April 29, 1889.

D. SULCATUM, Kindb. n. sp.

Intermediate between *D. fuscescens* and *D. congestum* but the leaves are still narrower. Stems very tomentose. Leaves slightly twisted, only the upper curved, denticulate from the middle upward, ovate-lanceolate, gradually narrowed into a long setaceous point; cells porose, the lower long, the upper short; costa long-excurrent, broad, one-fifth of the leaf near the base. Capsule curved, furrowed when dry, substrumose; peristome dark red.

On the ground and on logs at Victoria, Vancouver Island, 1887; quite common between Burrad Inlet and the Gold Range, B C. 1889.

D. SUBULIFOLIUM, Kindb. n. sp.

Stems low, 2-3 cm. high, not, or sparingly radiculose. Leaves yellowish, patent, scarcely brittle, very narrow and sub-setaceous, the subula denticulate above; cells narrow, porose; costa about one-sixth of the leaf in length, smooth at the back, often excurrent. Capsule small, straight and cylindric; seta yellow.

On old logs, in woods at Cedar Hill, near Victoria, Vancouver Island, April, 1887.

Fissidens limbatus, Sulliv. On clay banks along an old road at Comox, Vancouver Island.

F. minutulus, Sulliv. On earth at Comox, Vancouver Island.

F. tamarindifolius, Brid. On the base of trees subject to inundation, Eagle River Valley at Sicamous, B. C. August 7, 1889. New to America.

F. osmundoides, Hedw. On earth in woods at Sicamous, B. C.

Ceratodon purpureus, Brid. Common in all suitable places.

Var. *xanthopus*, Sulliv. Not uncommon on rocks, near Victoria, Vancouver Island.

C. minus, Aust. On moist soil near Victoria, and at Comox, Vancouver Island; west of Frazer River, at Quesnel, B. C.

C. conicus, Hampe. On the base of a stump in dry open woods, near Spence's Bridge, B. C. May 29, 1889. New to America.

Trichodon cylindricus (Hedw.), Schimp. Along ditches at Victoria, Vancouver Island; also at Hastings, B. C. in some localities.

Distichium capillaceum (Hedw.), Bruch and Schimp. Crevices of damp Rocks, Rocky Mountains and Gold Range, B. C.; also Mount Arrowsmith, Vancouver Island.

D. inclinatum (Hedw.), Bruch and Schimp. Damp crevices of rocks, Peace River. Lat. 56° 16′.

Blindia acuta (Hedw.), Bruch and Schimp. var. *flexipes*, Ren. and Card. Along the Nanaimo River, Vancouver Island; on rocks in a mountain torrent at Yale, and along the Bonaparte River, B. C.

Pottia cavifolia, Ehrh. On dry earth on the west side of the Thompson River at Lytton, B. C.

P. intermedia, Turn. On earth at Yale and Cache Creek. B. C.

Didymodon rubellus, Bruch and Schimp. Crevices of rocks, Bow River Pass, Rocky Mountains, and at Spence's Bridge and Lytton, B. C.

Leptotrichum flexicaule, Hampe. Wet rocks Peace River Canon, Lat. 56°; Kicking Horse Lake, Rocky Mountains; shore of Lake Mara, Sicamous, B. C.

Var. *densum*, Schimp. Calcareous rocks at Morley, Rocky Mountains and in the Columbia Valley at Donald, B. C.

L. glaucescens, Hampe. On the bank of a creek at Sicamous; and on the summit of Mount Queest, Gold Range, B. C.

Desmatodon latifolius, Brid. On earth Blackwater River; and on Mount Queest, and mountains north of Griffin Lake, Gold Range, B. C. Alt. 6,500 feet.

D. cernuus, Bruch and Schimp. On wet rocks in a ravine at Kamloops, and on earth at Cache Creek, B. C.

Barbula brevirostris, Bruch and Schimp. On earth under Douglas Fir, at Morley, Rocky Mountains.

B. rigida, Schultz. On rocks Rocky Mountains Canon, Lat. 56°

B. ambigua, Bruch and Schimp. On calcareous earth at Quesnel, B. C.

B. unguiculata, Hedw. On earth along the Frazer River at Port Henry, B. C.

B. fallax, Hedw. On wet earth in a ditch at Comox, Vancouver Island.

B. rigidula, Schimp. On earth by a brook at Lytton, B. C.

B. rubiginosa, Mitt. Quite common on rocks at Cedar Hill and Comox, Vancouver Island, and on Mount Erskine, Salt Spring Island.

B. flexifolia, Hampe. Quite common on damp earth along the southern coast of Vancouver Island; also at Burrad Inlet, B. C.

B. virescens, Lesq. On rocks at Agassiz and Sicamous, B. C.

B. cylindrica, Schimp. Very abundant on rocks subject to inundation along the Frazer River from Hope to Lytton, B. C.

B. gracilis, Schwaegr. On rocks subject to inundation, Peace River Canon, Lat. 56° and at Yale in B. C., in same situation.

VAR. SQUARRULOSA, Kindb. n. var.

Leaves squarrose, distinctly papillose, faintly reflexed at the base, flat or canaliculate above.

On rocks subject to inundation at Yale, B. C. This was sent to Austin in 1875 and referred doubtfully by him to *B. gracilis*.

B. convoluta, Hedw. By the roadside at Comox, Vancouver Island.

B. tortuosa, Web and Mohr. On rocks, Kicking Horse Lake, Rocky Mountains; on Mount Queest, Gold Range, and at Sicamous, B. C.; Mount Arrowsmith, Vancouver Island.

B. subulata, Beauv., var. LONGIFOLIA, Kindb. n. var.

Intermediate between *B. subulata* and *B. angustata*. Leaves long and narrow, acuminate and acute, distinctly denticulate above, papillose, yellow, bordered; costa long-excurrent, but shorter in the perichætial leaves.

Not uncommon on the base of trees near Victoria, Vancouver Island and on rocks at Yale, B. C.

B. angustata, Wils. On rocks at Morley, Bow River Pass, Rocky Mountains; abundant on earth along brooks at Spence's Bridge, Lytton and Agassiz, B. C.; new to North America.

B. lævipila, Bruch & Schimp. On the base of trees, Cedar Hill, near Victoria, Vancouver Island.

B. alpina, Bruch & Schimp. On rocks within the Rocky Mountains, Bow River Pass. Lat. 56°. New to North America.

B. ruralis, Hedw. Dry rocks, Kananaskis River, Rocky Mountains; also at Victoria, Vancouver Island.

Var. *ruraliformis*, Besch. On a sand spit at Comox, Vancouver Island; also at Lytton, B. C.

B. aciphylla, Bruch & Schimp. On rocks, summit of Mount Queest and mountains north of Griffin Lake, Gold Range, B. C.; Alt. 6,500 feet. New to North America.

B. megalocarpa, Kindb. Bull. Torr. Bot. Club, xvi. 92.

On rocks at Cadbow Bay near Victoria, Vancouver Island; also abundant at Yale, Agassiz and Sicamous, B. C.

B. Muelleri, Bruch & Schimp. On rocks near Victoria, Vancouver Island; also at Yale and Lytton, B. C.

Grimmia conferta, Funk. On dry rocks, Mount Queest, Gold Range, at Lytton and Blackwater River, B. C.

G. apocarpa, Hedw. On dry rocks, Morley, Rocky Mountains and at Kamloops, B. C.

Var. *gracilis*, Nees. & Hornsch. Quite common on precipices and faces of steep rocks at Moodyville, Agassiz and Sicamous, B. C.; also at Kananaskis, Rocky Mountains.

Var. *rivularis*, Nees. & Hornsch. On stones in Cornwallis River, Comox, Vancouver Island; also in the Bow River, Kananaskis Falls, Rocky Mountains.

G. platyphylla, Mitt. On rocks along Peace River. Lat. 56° 25′.

G. maritima, Turn. On rocks exposed to the spray of the sea, Vesuvius Bay, Salt Spring Island, Gulf of Georgia; also on rocks at Hastings, Burrad Inlet, B. C.

G. anodon, Bruch & Schimp. On dry rocks at Morley, Rocky Mountains; and at Lytton, B. C.

G. plagiopodia, Hedw. On sandstone rocks along Peace River. Lat. 56° 25′.

G. pulvinata, Smith. On rocks, Mount Erskine, Salt Spring Island, Gulf of Georgia; common at Lytton and Blackwater River, B. C.

(*To be continued.*)

An Enumeration of the Plants Collected by Dr. H. H. Rusby in South America, 1885-1886.—XII.

(Continued from p. 60).

Miconia fulva (Rich.), DC. Prodr. iii. 180. Falls of the Madeira, Brazil (2290).

Miconia dolichorhyncha, Naud. l. c. xvi. 166. Guanai, 2,000 ft.; (2252).

Miconia annulata (Naud.), Tri. l. c. 121. Yungas, 6,000 ft. (2272; 2295); Yungas, 4,000 ft. (2285).

Miconia livida, Tri. l.c. Yungas, 6,000 ft. (2296); Guanai, 2,000 ft. (2548).

MICONIA ELONGATA, Cogn. sp. nov. (Sect. *Amblyarrhena*); glaberrima; ramis subacute tetragonis; foliis breviter petiolatis, elongato-lanceolatis, longiuscule acuminatis, inferne alternatis acutisque, integerrimis vel tenuissime remotesque denticulatis, triplinerviis vel subtrinerviis; paniculis mediocribus, pyramidatis, multifloris; floribus 5-meris, breviter pedicellatis, ebracteolatis; calycis tubo ovoideo, limbo leviter dilatato, lobis late triangularibus, brevissimis; antheris oblongo-linearibus, connectivo postice brevissime calcarato; stigmate peltato.

Rami robustiusculi, pallide cinerei. Petiolus 1-1½ cm. longus. Folia submembranacea, 17-20 cm. longa, 3½-5 cm. lata, nervis subtus valde prominentibus, nervulis numerosis, coloratis. Paniculæ 7-8 cm. longæ. Pedicelli 1-2 mm. longi, ad medium articulati. Calyx fuscescens, 1½ mm. longus. Petala obovata, ¾ mm. longa. Staminum filamenta capillaria, geniculata, 1½ mm. longa; antheræ ⅔ mm. longæ. Stylus 2-2½ mm. longus. Yungas 6,000 ft. (2283).

Miconia Ruizii, Naud. l.c. 192. Yungas, 6,000 ft. (2308).

Miconia plumifera, Tri. l.c. 124. Unduavi, 8,000 ft. (2331).

Miconia papillosa (Desr.), Naud. l.c. 316. Beni River (2305); Guanai, 2,000 ft. (2313).

Miconia cremophylla, Naud. l.c. 228. Yungas, 6,000 ft. (2266).

Miconia cœlestis (Don), Naud. l.c. 245. Mapiri, 5,000 ft. (2279), det Cogniaux; Unduavi, 8,000 ft. (2284); Mapiri, 2,500 ft. (2261), the latter determination somewhat doubtful.

Miconia cyanocarpa, Naud. l.c. 221. Mapiri, 2,500 ft. (2274). Det. Cogniaux.

MICONIA BRITTONII, Cogn. sp. nov. (Sect. *Cremanium*); ramis obscure tetragonis, junioribus petiolis paniculis calycibus foliisque subtus ad nervos pilis brevissimis patulis papillosis densissime hirtellis; foliis breviter petiolatis, anguste ovatis, basi subrotundatis, apice obtusiusculis, remotiuscule breviterque aculealato-denticulatis, 5-plinerviis, supra brevissime subsparseque strigillosis, subtus brevissime et densiuscule villosis; paniculis mediocribus, thyrsoideis, multifloris; floribus sessilibus, minute bracteolatis, subfasciculatis, calycis lobis anguste ovatis, acutis, tubo dimidio brevioribus, antheris parvis, biporosis, anguste obovoideis; stigmate peltato.

Rami robustiusculi, cinerei. Petiolus robustus, 1-2 cm. longus. Folia rigidiuscula, subtus cinerea, 12-16 cm. longa, 6-7 cm. lata, nervis subtus valde prominentibus. Paniculæ satis ramosæ, 8-10 cm. longæ. Calyx cinereus, tubo ovoido-campanulato, 1½ mm. longo, lobis ⅔ mm. longis. Petala ovato-oblonga, subacuta, 1 mm. longa. Stylus filiformis, 1½ mm. longus. Aff. *M. cyanocarpa*, Naud. Yungas, 4,000 ft. (2309), Det. Cogniaux. Mapiri, 5,000 ft. (2292), Det. N. L. B.

MICONIA POLYGAMA, Cogn. sp. nov. (Sect. *Cremanium*); ramis obtuse tetragonis, superne leviter compressis junioribus petiolis, paniculis foliisque subtus ad nervos pilis patulis brevibus apice stellulato, ramosis, densiuscule hirtellis; foliis longiuscule petiolatis, ovatis, breviter acuminatis, basi rotundatis, integerrimis vel obscure undulato-denticulatis, 5-7-nerviis, supra minute subbullatis, subtus leviter foveolatis, utrinque brevissime subsparseque hirtellis; paniculis mediocribus, pyramidatis, multifloris, compactis; floribus 5-meris, subdioicis, sessilibus vel brevissime pedicellatis, bracteolis subulato-setosis suffultis; calyce glabro, ovoideo, minute 5-denticulato; antheris late obovoideis, apice truncatis et late biporosis; stigmate peltato.

Rami graciles, cinereo-fusci. Petiolus satis gracilis, 3-5 cm. longus. Folia submembranacea, 8-11 cm. longa, 5-8 cm. lata. Paniculæ 6-8 cm. longæ. Flores interdum omnes masculi, interdum plerumque feminei rarius hermaphroditi. Calyx 1½ mm. longus. Petala late ovata, ⅔ mm. longa. Stamina alternatim satis inæqualia, filamentis capillaribus, ¾-1 mm. longis; antheræ ⅔ mm. longæ, connectivo tenuissimo, basi longe producto. Stylus filiformis, 2½ mm. longus. Bacca nigra, subglobosa, 3 mm. crassa. Guanai, 2,000 ft. (2519 ♂); Unduavi, 8,000 ft. (2282 —sub ♀).

MICONIA RUSBYANA, Cogn. sp. nov. (Sect. *Cremanium*); ramis obscure tetragonis, glabris; foliis breviter petiolatis, lanceolatis, subacute breviterque acuminatis, inferne longe attenuato-cuneatis, integerrimis, triplinerviis, supra ad nervum medianum brevissime hirtellis cæteris glabris et scabriusculis, subtus glaberrimis; paniculis mediocribus, late pyramidatis, multifloris, densiuscule breviterque hirtellis; floribus 5-meris sessilibus, ebracteolatis, subfasciculatis; calyce glabro, subhemisphærico, brevissime 5-denticulato; antheris late obovoideis, apice truncatis et latissime biporosis.

Rami graciles. Petiolus gracilis, 1-2 cm. longus. Folia membranacea, 1-1½ dm. longa, 3-4 cm. lata, nervis nervulisque subtus satis prominentibus. Paniculæ 8-10 cm. longæ, ramis patulis, elongatis. Calyx 1 mm. longus. Petala obovato-angulata, ¾ mm. longa. Staminum filamenta capillaria, 1-1½ mm. longa; antheræ ⅔ mm. longæ, connectivo tenuissimo, basi longe producto. Stylus ignotus. Yungas, 6,000 ft. (2259).

MICONIA FLAVESCENS, Cogn. sp. nov. (Sect. *Chænopleura*); ramis teretiusculis, junioribus petiolis paniculis foliisque subtus ad nervos brevissime denseque furfuraceo-papillosis et ferrugineis; foliis breviuscule petiolatis, ovato-oblongis, acutis, basi rotundatis, margine remote minuteque spinuloso-denticulatis, trinerviis, supra glabris, subtus primum leviter, punctato-furfuraceis demum glabratis, paniculis parvis, paucifloris; floribus 5-nervis, breviter pedicellatis, ebracteolatis; calyce glabro, subhemisphærico, minute remoteque 5-denticulato.

Rami graciles, breves, ramulosi. Petiolus 1-2 cm. longus. Folia rigidiuscula, utrinque flavescentia, 5-7 cm. longa, 2-3 cm. lata, nervis subtus satis prominentibus, nervulis paulo distinctis. Paniculæ 2-4 cm. longæ, paulo ramosæ, pedicelli graciles, 1-3 mm. longi. Calyx siccitate nigricans, 2 mm. longus, 3 mm. latus. Aff. *M. andina*, Naud. Unduavi, 10,000 ft. (2288).

Miconia andina, Naud. l. c. 236. Unduavi, 8,000 ft. (2286).

Miconia Mandoni, Cogn. in Herb. Kew. Unduavi, 8,000 ft. (2287). The same as Mandon's No. 646.

Miconia nervosa, (Smith), Tri. l. c. 111. Yungas, 6,000 ft. (2280). Junction of the rivers Beni and Madre de Dios (2291).

Miconia eriodonta, DC. l. c. 185. Yungas. 4,000 ft. (2726).

Miconia rubiginosa, (Bonpl.), DC. l. c. 183. Yungas 6,000 ft. (2300); Mapiri 5,000 ft. (2298); the latter a form with long acuminate leaves.

Miconia Fothergilla, (DC.), Tri. l. c. 119. Mapiri 5,000 ft. (2293).

Miconia persicariæfolia, Cogn. Guanai, 2,000 ft. (992); det. Cogniaux.

Miconia caulescens, DC. Mapiri, 5,000 ft. (2256). Matching specimens so named in Herb. Kew.

Miconia Boliviensis, Cogn. Unduavi, 8,000 ft. (2260). Det. Cogniaux.

Miconia novemnervia, Naud. l. c. 217. Mapiri, 5,000 ft. (2316).

Miconia lanata, (DC.), Tri. Falls of the Madeira, Brazil. (2303).

Miconia holosericea, (L.), Tri. l. c. 101. Guanai, 2,000 ft. (2250); Mapiri, 5,000 ft. (2297).

Miconia, "parait une nouvelle espèce, mais trop incomplet pour le decrire; aspect du *M. polyneura*, Tri. mais distinct"—Cogniaux. Yungas, 6,000 ft. (2263).

Miconia, "espèce peut-etre nouvelle?"—Cogniaux. Mapiri, 2,500 ft. (2275).

"*Miconia ou Leandra?* especе nouvelle"—Cogniaux. Yungas, 4,000 ft. (2334).

Tococa Guianensis, Aubl. Pl. Gui. i. 428. Beni River (2242).

Tococa coronata, Benth. in Hook. Journ. Bot. ii. 303. Junction of the rivers Beni and Madre de Dios, (2321). A variety with thin, membranaceous leaves, perhaps a distinct species.

Clidemia hirta, (L.), Don. Mem. Wern. Soc. iv. 309. Falls of the Madeira, Brazil, (2239, 2240). Mapiri, 5,000 ft. (2236).

Clidemia dependens, (Pav.), Don. l. c. 307. Mapiri, 5,000 ft. (2237).

Clidemia rubra, Aubl. Mapiri, 5,000 ft. (2318); Mapiri, 2,500 ft. (2319).

CLIDEMIA BOLIVIENSIS, Cogn. sp. nov. (Sect. *Staphidium*, Cogn. Fl. Bras.); ramis teretiusculis, junioribus petiolis pedunculisque pilis longissimis patulis mollibus subsparse hirtellis; foliis majusculis, anguste ovatis, longiuscule acuminatis, basi inæquilateris et rotundatis vel leviter emarginatis, levita undulato-crenulatis, 5-nerviis, supra breviuscule sparseque pilosis, subtus sparse longeque hirtellis præcipue ad nervos; cymis brevibus, 3-5 floris; calyce leviter furfuraceo et sparse longeque piloso, tubo oblongo, lobis brevissimis, dentibus exterioribus subulatis, tubo sublongioribus.

A New White Smut.

While making a study of the parasitic fungi of the cultivated spinach (*Spinacea oleracea*,) it was a surprise to find a species of *Entyloma*, and especially as this host is so distant in the natural classification of plants, from any other host of a white smut. The infected leaves had lost all their normal green color and were of a pale yellowish white shade—in fact, presented much the same appearance as succulent foliage may take on after having been frost bitten some time before. Upon a closer examination, however, the surface of the whitened leaves was found coated in spots with a fine light substance that under the hand lens was seen to be in minute tufts. The low power of a compound microscope revealed these miniature rosettes as consisting of slender filaments bearing acicular bodies at their tips. Thin transverse sections of these infected patches showed small clusters of spherical spores imbedded in the leaf tissue, but close to the under epidermis. Further study demonstrated the fact that the clusters—each consisting of from a dozen to fifty spores, were located directly below the breathing pores and occupied the large intercellular spaces there found in the loosely constructed succulent leaf of the spinach. Placing a piece of the infected leaf, after being cleaned by alcohol and potash, with the underside uppermost and focussing, it was an easy matter to pass by optical sections from the highest part of the conidial bearing tuft to the center of the cluster of spores below. Carefully made sections through the breathing pores bearing the fungus illustrated the same disposition of the parts as seen in a side view. The threads of the fungus are exceedingly minute, and the conidia are so small and slender that they are easily overlooked unless high powers are employed. It gives me pleasure to dedicate the species to Mr. J. B. Ellis, who has done so much for the cause of mycological study in this country. The following is a description of the white smut of the spinach.

ENTYLOMA ELLISII. Spots pale white, indefinitely limited, sub-confluent; spores globose nearly colorless 16-20μ in diameter, clustered in the intercellular spaces beneath the stomata. Conidia hypophyllous, abundant, acicular, small 10-14 by less than 1μ. On cultivated spinach growing in hot beds near Newark, New Jersey, January 10, 1890.

The white smuts, or Entylomata, are neither numerous nor particularly destructive, as a rule, to their hosts, and if they are, it is often a blessing to the crop grower, for the hosts are mostly insignificant or weedy plants. Saccardo* enumerates thirty-six species, while Winter† stops at half that number. The following are the species found in this country: *Entyloma microsporium*, Schrt. on *Ranunclus repens.*—*E. Thalictri*, Schrt. on *Thalictrum dioicum*. *E. Lobeliæ*, Farl. on *Lobelia inflata*. *E. Linariæ*, Schrt. on *Veronica peregrina*. This last species was found by the writer last autumn upon *Linaria vulgaris*, in New Jersey, and is probably the first time it has been thus met with in this country. An opportunity was therefore offered to compare this species (which agrees with foreign specimens kindly loaned me by Mr. J. B. Ellis) with the form so abundant upon and sometimes so destructive to the *Veronica peregrina*. As Entylomata go, there are some marked differences between the two; the most important of which are in the size and shape of the spores. Those upon the *Veronica* are darker and much larger than the typical form of the *Linaria*. While the latter has the spores 9-12μ by 11-14μ those of the *Veronica* are 12-15μ by 17-20μ. The mature sori are consequently darker in the *Veronica*, and other differences are noticeable which, were the spores alike, might be accounted for, possibly, as host peculiarities. The *Entyloma* of the *Veronica* appears in early spring—a matter of necessity, as the host is short-lived—while the one upon the *Linaria* matures in autumn. There may not be sufficient ground for a separate species, but it seems proper that a form at least should be recognized as follows: *E. Linariæ*, forma VERONICÆ, nov. forma on *Veronica peregrina* with the differences as above stated.

Other American Entylomata are *E. Menispermi*, F. & T. on *Menispermum Canadense*; *E. Physalidis*, Wint. on *Physalis* sp. and *Solanum triflorum*; *E. polyspermum*, Fl. on *Ambrosia trifida*; *E. Saniculæ*, Pk. on *Sanicula Marylandica*; *E. Compositarum*, Fl. on *Aster puniceus*, *Ambrosia artemisæfolia* and *Rudbeckia laciniata*; and *E. Flærkeæ*, Holw., on *Flærkea proserpinacoides*.

It will be seen from the above that the spinach *Entyloma* is the

* *Sylloge Fungorum*, vii. pp. 487–496.

† Die Pilze, i. pp. 111–116.

only one in this country that has been found upon a cultivated plant. In Europe one species (*E. crastophilum*, Sacc) occurs on the orchard grass (*Dactylis glomerata*) while *E. Calendulæ* D.By. is sometimes met with upon the marigold (*Calendula officinalis*) and arnica (*Arnica montana*). The leading orders bearing white smuts are: Ranunculaceæ, Papaveraceæ, Compositae, Boraginaceæ and Gramineæ, and the one upon the spinach, introduces a new host-order and one that at present is surrounded by those not known to contain any species attacked by an *Entyloma*.

BYRON D. HALSTED.

RUTGERS COLLEGE, March 24, 1890.

The New Edition of Gray's Manual.

Prof. Porter's criticism of the new edition of Gray's Manual, which was admitted into the last number of the BULLETIN, is written in a spirit so unworthy of him that self-respect on the part of the editors of the Manual would ordinarily forbid a reply. There are some statements, however, which I desire to make in relation to the work, some of which touch more or less closely upon points that Prof. Porter has referred to. As for most of the questions propounded by him, so far as I understand their bearing, anyone who has taken the trouble to read the preface will need little further answer.

The different editions of the Manual have contained the following numbers of pages: the first 782, the second 791, the third 746, the fourth 890, the fifth 742, and the sixth 818. The Mosses and Liverworts were included in all the previous editions excepting the third and fifth, the third and fourth including also the "Garden Botany." The Mosses, etc., were dropped from the fifth edition in the expectation that a supplementary volume would be prepared to cover them and perhaps other cryptogams. This hope has been fulfilled only in part by the publication of the Manual of Mosses by Lesquereux and James.

In the present edition, notwithstanding the extension of the territory, and with the inclusion again of the Hepaticæ, with other material which it seemed advisable to add, an effort has been made to avoid an increase in the bulk of the volume. Economy of space has been studied at every point where it was

justifiable. Electrotype plates for the illustrations have been substituted for the original stones and copper plates, which has permitted their printing upon thinner paper and the placing of the explanations opposite the plates to which they refer. A thin but firm paper has been used for the whole volume, and the result as respects bulk is that, the book is both thinner and lighter than even the last edition.

In the elaboration of the matter that has been admitted it was, of course, impossible to please everyone. What appears a fault to one will be an excellence in the judgment of another. In the portions that had not recently been revised by Dr. Gray himself the work is necessarily unequal, inasmuch as some orders have been subject to more or less thorough and trustworthy revisions by various botanists, while others have had no especial attention given to them for years. It was necessary to make the best of what was at hand, and this has been done as far as the limited time permitted, every known available source of information up to the very latest date being made use of, and no little original work intercalated where it seemed most needed. All the conclusions and determinations that have been published have not, however, been adopted, for what seemed in each case to be good reasons. A case in point is one referred to by Prof. Porter in regard to *Gentiana alba*, Muhl., a name which he considers that he has "clearly proved untenable." But a careful consideration of the whole question, including a reference to Muhlenberg's manuscripts, convinced me that Dr. Gray's conclusion was probably the more correct one.

The undue multiplication of varieties has not been favored. Everyone must understand that species vary, some more and some less, but all to some extent. The attempt to define and name these variations is in the great majority of cases of little profit, especially in a manual like the present.

The determination of the range of species was often a difficult and unsatisfactory matter. Numerous local catalogues, more or less reliable, the Gazette, THE BULLETIN, the Gray Herbarium, were at hand and were consulted whenever there seemed occasion for it. That there should be not a few errors of various kinds is not strange, and I am not at all surprised that the keen scent of

Prof. Porter has enabled him to draw up a list of sixty, though more than half of the cases mentioned by him are fairly covered by the range as now given in the Manual. Botanists will not be greatly troubled in this regard, I think, if they will give common sense fair play, and consider that when the range is given from New England to Minnesota, for example, the limit is not to be taken as a mathematically straight line connecting the two, and when a plant is said to be common, that it may be more common in some sections than others, or may even be wholly wanting in some areas.

Some additional facts respecting distribution that were overlooked or at the time unknown may here be given. *Caltha natans*, Pall., not previously known as belonging to our flora, has been collected by Mr. E. J. Hill, at Tower, Minnesota. *Dianthus deltoides* occurs on the downs of Martha's Vineyard (Miss Edith Watson); *Sagina procumbens*, at Champion, Michigan (E. J. Hill); *Solidago neglecta*, var. *linoides*, at Turner, Maine (John A. Allen); *Ruellia pedunculata*, Torr., should be added, found at De Soto, Mo., by Dr. H. E. Hasse.

Typographical errors, and the like, are unavoidable. Attention is called to a few of some importance. On page 19, the cross-reference should be to page 5. On pages 62 and 63 the genera referred to in the headings of the key should be n. 2, n. 5, and n. 11, instead of n. 3, n. 4, and n. 10. On page 98 the root of *Callirrhoë triangulata* should be described as fusiform. On page 145, read *Ammannia latifolia*. On page 375, read Independence, Mo. On page 383, the upper lip of the corolla of *Conobea* is 2-lobed. On page 441, for *Lurs* read *Leers*. On page 470, Sweet-fern is omitted as the common name of *Myrica asplenifolia*. *Prunus* is omitted from the Index, and Plate 15 is referred to in the text uniformly as Pl. 16. These errors will be corrected in the next issue.

The editors of the Manual have been neither omniscient nor infallible. But they have tried to do their best, and knowing something of the book, I will for myself frankly say that I look upon it, as it stands, as a piece of "good work," and I confidently believe that it will be appreciated as such more and more by botanists who may use it.

SERENO WATSON.

A New Moss of the Genus Bruchia.

(PLATE CI.)

BRUCHIA LONGICOLLIS: Cæspitosa, pro genere robusta, monoica; foliis late ovatis laxe areolatis in costam validam subcanaliculatam longissime excurrentem contractis, perichætialibus longioribus lanceolatis convolutis excurrenti–costatis; capsula pedicello folia subduplo superante suffulta collo longissimo prædita ovali oblonga infra rostellum tenue serie transversali cellularum breviorum notata atque idcirco dehiscentiam stegocarpicam simulante; calyptra campanulata basi in segmenta 3-4 fissa; sporis numerosissimis asperulis .0012-.0114 unc. metientibus.

Discovered in August, 1889, by Mr. Alexander W. Evans, of the Sheffield Scientific School, growing in little patches on a decayed log in a swamp in the town of Jackson, New Hampshire.

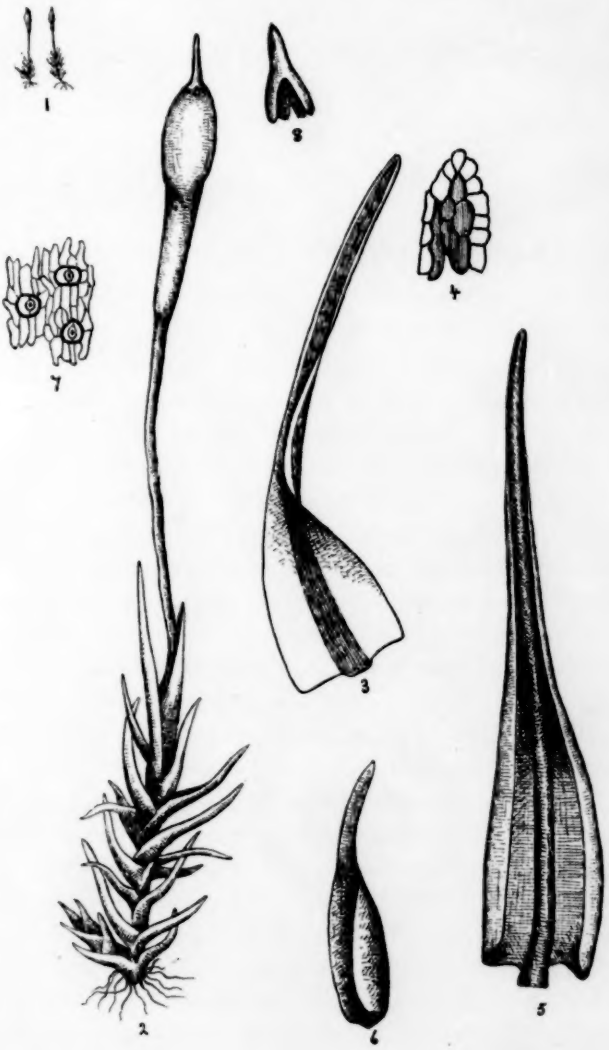
Plants densely clustered, 7-10 mm. high.

Stem leaves suddenly narrowed from a broadly ovate clasping base into a long excurrent awn-like costa, which is in the lower part narrowly bordered by the leaf-margin. Perichætial leaves 3-4, longer than the others, lanceolate, somewhat tubulose from the incurved margins, gradually acuminate, costa excurrent.

Capsule on a stout pedicel which overtops the perichætial leaves, oblong-oval, orange-yellow, below suddenly narrowed into a collum longer than the capsule itself, above contracted into a slender beak. Collum with abundant stomata. The beak is composed of nearly regular rows of oblong cells which are shorter at the base, and this rests on several rows of minute cells, the whole forming an inseparable operculum.

Male flowers terminal on short basal branches of the plant, the perigonial leaves concave with a short faintly-nerved acumination; antheridia not clearly seen.

This is a stouter plant than either *Bruchia Bolanderi* or *B. Vogesiaca*, both of which it somewhat resembles. The strong excurrent costa of the leaves, the very long and conspicuously stomatiferous collum, and the rudimentary line of dehiscence of the capsule, will serve to distinguish it from both of them, and at the same time indicate a closer approximation to the characters of *Trematodon*, to which genus the specimens were referred at the first cursory glance.



BRUCHIA LONGICOLLIS, D. C. Eaton.

DESCRIPTION OF THE PLATE.

Fig. 1.—Two plants, 1½ nat. size.
2.—A plant, magnified.
3.—A stem leaf.
4.—Tip of stem leaf.
5.—Perichætial leaf.
6.—Perigonial leaf.
7.—Stomata of collum.
8.—Calyptra.

D. C. EATON.

NEW HAVEN, February, 1890.

Notes on Some of the Plants Found in Muskoka Lake, Sept. 1st, 1889.

The Range of Subularia aquatica. In regard to the range of *Subularia aquatica*, whose North American stations formed so interesting a communication in the November BULLETIN, Bentham in his "Handbook of the British Flora," gives:—

"The shallow edges of alpine ponds and lakes, in northern Europe, Asia, and America, and more rarely in central Europe. Scarce in Britain, in the mountains of Scotland, northwestern England, and north Wales." In the second edition of Withering's Botany, 1787, it is said that the *Subularia aquatica* grows under water on a gravelly bottom in Lough Neagh, Ireland, on the side next Kilmore, Ray; Loch Tay and Loch Carran, Scotland. Mr. Stuart; in lakes on the mountains near Llanberrys. Hudson; and Llyn-y-Cwn, near Snowdon, Pennant."

Lobelia Dortmanna is found abundantly in the shallow parts of the lakes in the north and northwest of Great Britain, especially in the mountain regions; often, according to Hooker and Arnott, forming a carpet at the bottom of the water with its densely matted foliage.

In the southeast corner of Derwentwater, at intervals ranging from a few weeks to ten years, a blister-like upheaval of the peat occurs, bringing the bottom of the lake up from six feet beneath to a few inches above the surface of the water. A careful examination of this popularly called floating island, reported in a recent history of it by Mr. G. J. Symons, shows its surface to be covered with living specimens of *Lobelia Dortmanna*, L., *Isoetes lacustris*, L. and other water plants that abound in the lake.

Eriocaulon septangulare. The genus *Eriocaulon*, with the exception of *E. septangulare* in the lakes of the isles of Skye, and a few of the neighboring Hebrides, and of Connemara, in Ireland, is wholly wanting in Europe and Russian Asia. The genus extends over North and South America almost from pole to pole, and is well represented in tropical Asia, Africa and Australia, (Bentham). Withering (1787) gives the stations of *E. septangulare* in the isle of Skye, with great detail, stating that it was discovered in two or three small fresh water lochs in 1768. In one of these he says that it occurred in such abundance that "the white fibres of the roots are thrown on the edges of the loch as sea-weeds on the sea-shore."

K. B. CLAYPOLE.

Botanical Notes.

Subularia aquatica, L.—Dr. J. W. Chickering, under date of November 16th, 1889, writes as follows: "In 1858, I discovered *Subularia* in abundance about two miles west from Portland, Me., along the line of the old Portland and Sebago Canal, on muddy banks caused by the washing out of the canal, and collected a quantity. Two or three years after, I visited the locality, and although the environment was in all its conditions unchanged, I could not find a trace of it."

DAVID F. DAY.

Note upon Ailanthus.—In connection with Mr. A. F. Wood's observations on the Cottonwood, reviewed in the February BULLETIN, page 43, it may be said that during the past season repeated observations were made upon the Ailanthus, (*Ailanthus glandulosus*, a well-known shade tree in the Eastern States, in order, if possible, to obtain some means by which to distinguish the staminate from the pistillate plants while they are seedlings. As yet nothing has been discovered in wood or bark, bud or leaf, that will give any clue as to the sex. There are great differences as to time of leafing and defoliation between trees of this species growing apparently under the same circumstances, but the sex seems to have nothing to do with this. In fact, it is not uncommon for species of trees with perfect flowers

to exhibit as great variations, in these and many other respects, not to exclude the striking one of foliage coloration in autumn.

The value of some distinguishing sex characteristic in the case of seedling Ailanthus trees, could it be found, would be appreciated by all who are acquainted with these ornamental trees. To others we need only to quote a line from Dr. Gray: "Called Tree of Heaven—but whose blossoms, especially the staminate ones, are redolent of anything but 'airs from heaven.'" It is needless to say that it is desirable to exclude the males from the city streets. BYRON D. HALSTED.

New Brunswick, N. J., Feb. 12, 1890.

Burning of the Botanical Museum and Laboratory of the Michigan Agricultural College. On the night of March 23d, our Botanical Laboratory and Museum was destroyed by fire. We were able to carry out and preserve all the books, charts and apparatus, including the mounted portion of the herbarium. The Wheeler herbarium, recently purchased, containing over seven thousand species, including the most complete collection of Michigan plants ever brought together, was lost, together with a part of the electrotypes to illustrate my second volume on grasses. If life and health are spared, we shall have, in a few years, a much better building and a finer museum. For the present, very good accommodations for the botanical department are furnished in a part of the new Agricultural Laboratory recently completed.

W. J. BEAL.

A Munificent Gift. Mary E. Banning, who has for several years been studying the fungi of Maryland and making colored drawings of them, has recently presented to the New York State Museum of Natural History, a magnificent volume of illustrations of the species that have come under her observation. It contains one hundred and seventy-five plates, representing nearly as many species belonging mostly to the Hymenomycetes and Gasteromycetes. The plates are about the same in length as those of the Icones Selectæ Hymenomycetum of Fries and a little greater in breadth. The figures are most beautifully executed, painted in water colors and are very life-like in expression and accurate in detail. They are accompanied by manuscript de-

scriptions of the species, the botanical name, and in some instances by remarks suggested by the study of the specimens or by difficulties encountered in collecting them. The edible species are also indicated. The whole work is the product of Miss Banning's own labor and does great credit to her as an artist and a mycologist. The volume is one of great value, and the New York State Museum is under great obligations to its author for such a munificent gift.

CHAS. H. PECK.

Reviews of Foreign Literature.

White Huckleberries.—In the Berichte der deutschen Botanischen Gesellschaft for January, pp. 387-400, is a paper by Ascherson and Magnus* which considers at length the albinos and other color and form variations in *V. Myrtillus* and other species of the genus *Vaccinium*. White huckleberries have long been known, and many citations are given of their being found in various countries throughout the world. Schweter, in 1878, described a fungus disease of the huckleberry fruit under the name of *Sclerotinia baccarum* that has been considered by some botanists as the cause of the variations of color and form above mentioned. As the title indicates, the present paper is to show that the ordinary white huckleberry is not identical with those *Vaccinium* fruits that are modified by the presence of the *Sclerotinia*. The authors claim with much authority that while in the case of *V. Myrtillus* var. *leucocarpa* there may be some ground for the belief in identity, it is entirely superficial. Form and color may mislead, but when the microscopic structure is studied, and more particularly the fungus fruit that under proper conditions is produced from the diseased berries, it becomes evident that the two are very unlike in origin. By referring to Dr. Woronin's elaborate paper,† with its ten superior plates, it is quickly seen that Schweter's species, under consideration, is well understood and clearly set forth, along with several others that prey upon the huckleberries.

*Die Weisse Heidelbeere (*Vaccinium Myrtillus*, L. var. *leucocarpa*, Hausé). nicht identische mit der durch *Sclerotinia baccarum* (Sch.), Rehm, verursachten Sclerotien Krankheit.

†Ueber die Sclerotien Krankheit der Vaccinieen Beeren, 1888.

Turning to the other side, it may be said that there are great variations in the color and form of the fruit within the genus *Vaccinium*. Our own *V. corymbosum*, var. *atrococcum* is an illustration of "berries purple black, without any bloom," while *V. Pennsylvanicum*, var. *nigrum* is another with black fruit, and the cranberries exhibit a wide range of fruit colors. While it is true that in some cases the fruits, changed by fungi, may resemble those of albinos and "sports," it is also evident that no great difficulty should be experienced in deciding between the two. For example, we could suppose a rye grain to vary and become of a dark purple color and pass for ergot, but put to the test the deception is easily removed. BYRON D. HALSTED.

Chrysanthemum "Samuel Henshaw." (Garden, xxxvi. 381). As our fellow member is responsible for the origin of this *Chrysanthemum*, the Club will no doubt be pleased to know that it is attracting considerable attention in England, and it is said that "should the variety Samuel Henshaw turn out to be as valuable as is anticipated by some, it will be another instance of a plant whose merits were overlooked when it was first sent out." We congratulate Mr. Henshaw upon his success. A. H.

Recherches sur la transpiration et l'assimilation pendant les nuits Norvégiennes. M. G. Curtel. (Rev. Gen. de Bot. 15 Jan. 1890).

It is a well known fact that plants of northern regions grow more rapidly and often acquire a larger growth than the same species would with us. M. Curtel's experiments at Kongsvold, Norway, were undertaken for the purpose of ascertaining the extent of transpiration and assimilation during the long, crepuscular nights, and he suggests that one of the causes of the greater rapidity of growth might be the long duration of chlorophyllian assimilation which uninterruptedly might take place during the whole night. The leaves of Rye and *Hieracium Pilosella* were the plants used, and the results of the experiments are summed up in the following:

"1st. That chlorophyllian assimilation and transpiration took place during the whole of the night of July 31 to August 1.

2d. That particularly as to the assimilation, there was a minimum corresponding to the minimum of light." A. M. V.

Index to Recent American Botanical Literature.

Acænas. (Garden. xxxvii. 177, illustrated). A representation of *A. microphylla* is given.

Black Rot of the Grape—The. Chas. R. Carpenter. (Trans. Kans. Acad. Sci. xi. 14–17).

Circulation of Sap—Notes on. W. R. Lighton. (Trans. Kans. Acad. Sci. xi. 18–19).

Clathrus columnatus—Poisonous action of. W. G. Farlow. (Bot. Gaz. xv. 45–46).

The poisonous qualities of several of the Phalloideæ have been the subjects of discussion, in a popular way, on more than one occasion. In this article the above fungus is stated to have proved fatal to hogs in North Carolina.

Cobra Plant—The. F. W. Burbridge. (Garden, xxxvii. 147, illustrated). Includes a picture of *Darlingtonia Californica.*

Coreopsis—The Best Annual. (Garden, xxxvii. 202-203, pl. 742 and figs. in text).

Under this heading are described and figured a number of our native species, among them *C. aristosa, auriculata, cardaminifolia, Drummondi* and *lanceolata* and a colored plate of a dark variety of *tinctoria.*

Diatom Deposit from Artesian Wells at Atlantic City, N. J.—Notes on the Fossil. C. L. Peticolas. (Microscop. Journ. xi. 32, 33). A brief addition to the account published in the BULLETIN, vol. xvi. No. 3.

Diatoms in Boston Harbor, in September, 1889.—A search for. Wm. A. Terry. (Microscop. Journ. xi. 35–37).

Darlingtonia Californica. (Gard. Chron. vii. 84, figs. 14, 15).

Ephedra.—Die Arten der Gattung. Otto Stapf. (Reprint, Vol. lvi. Denkschr. Math. Naturwiss. Classe, Kais. Akad. Wiss., 4 to, pp. 112, 5 plates, and map, Vienna, 1889).

The American species *E. multiflora, Torreyana, Californica, aspera, trifurca, Nevadensis, antisiphylitica, Americana, gracilis, Tweediana, triandra, ochreata, dumosa* and *frustillata* are described and all but the latter two figured, so far as the inflorescence is concerned. *E. multiflora* is described as new.

Eriogonum—Species of. (Gard. Chron. vii. 260, pp. 38, 39, 40).

Under the suggestion that many of our *Eriogonums* make good garden plants, thirteen species are mentioned and *E. androsaceum, ovalifolium* and *compositum* are figured.

Eucharis Amazonica. (Gard. Chron. vii. 192, fig. 31).

Flora of Kansas—Personal observations upon. Mrs. A. L. Slosson. (Trans. Kans. Acad. Sci. xi. 19–22).

An earnest appeal for the study and cultivation of the native flora of the State, with interesting instances of the manner in which it has been crowded out in many places by introduced plants. There is a charming, unconscious tinge of sarcasm now and then, as in the following sentence: "A lady once bought of Vick, a dozen seeds of a beautiful foliage plant called 'Snow on the Mountains,' and succeeded in getting half a dozen, perhaps, to bloom just before frost, only to find that the bluffs back of her house, for miles, were just covered with the same flowers, and had been for three months."

Fossil Wood and Lignite of the Potomac Formation. F. H. Knowlton. (Bull. No. 56, U. S. Geol. Survey. Pamph. 8vo. pp. 52, plates 1–7. Washington, D. C., 1889).

The importance of structural investigation in palæobotany is emphasized in this work, both in text and illustration and we heartily agree with the author in this respect. A very brief comparison of a few well known works is all that is necessary to convince any one that the study of superficial characters alone has lead to the most bewildering confusion and waste of energy in describing and renaming the same species many times over. The author begins with a sketch of the progress made in palæobotany from the earliest times, when Albertus Magnus and Agricola first puzzled themselves over the mysteries of petrifaction, to the present era of such magnificent works as those of Brongniart, Gœppert, Unger, Schimper and our own Government and State Reports.

The geological horizon of the Potomac formation is still apparently a subject for discussion and the author fails to state exactly where he places it, although the term Jurasso-Cretaceous would seem to about comprise it. The organic remains are mostly in the blue clay and consist of both lignite and silicified wood. The preparation of these woods for examination under

the microscope is described, and finally descriptions and plates of the following new species are given: *Cupressinoxylon pulchellum, C. McGeei, C. Wardi, C. Columbianum* and *Araucarioxylon Virginianum.* Not the least interesting feature is an attempt at classification of the species referred by the author to this latter genus, based upon microscopic characteristics. Undoubtedly good results may be anticipated from further investigation in the field of work undertaken and set forth in this Bulletin. A. H.

Fungus Diseases of the Cranberry—Some. Byron D. Halsted. (Bull. No. 64, N. J. Agric. Exp. Station, December 31, 1889, illustrated).

The cranberry gall fungus (*Synchytrium Vaccinii*) and the cranberry "scald" are the subjects of the author's treatment.

Grasses of Box Butte and Cheyenne Counties, Nebraska. J. G. Smith. (Am. Nat. xxiv. 181-183.)

Grasses of Tennessee.—Key to the Genera of the native and cultivated.—F. L. Scribner. (Reprint from Bull. Tenn. Exp. Sta., pamph., 8vo., pp. 7.)

Guatemala—Undescribed Plants from. VII. John Donnell Smith, (Bot. Gaz. xv. 27-29, pl. iii, iv.)

Oxalis dimidiata, Styrax Guatemalensis, Tradescantia subscaposa, (originally distributed as *Spironema sp.*) *Carpinus Americanus,* Michx., var. *tropicalis, Campanea picturata,* and *Nephrodium duale,* the last two figured, are described as new.—*Asplenium Vera-pax* (see Bot. Gaz. xiii. 77) is in this article referred to *A. Riedelianum,* Bong.—Descriptions are completed of *Hanburia parviflora* and *Solanum olivæforme.*

Haplopappus Baylahuen, C. Gay.—H. H. Rusby. (Reprint from Drug. Bull. February, 1890, illustrated.)

Heather in North America.—The problem of. George L. Goodale. (Garden and Forest, iii. 62, 63,)

The occurence of *Calluna vulgaris* at several stations in the British provinces and New England is described.

Hickoria olivæformis. Carl Mohr. (Pharm. Rundsch. viii. 56-59, illustrated.)

Under this caption the author gives a popular account of *Hicoria Pecan,* with excellent plate.

History of Garden Vegetables.—The. E. L. Sturtevant. (Am. Nat. xxiv. 143-157.)

The contribution contains notes on parsnip chervil, (*Chærophyllum bulbosum.*), patience dock, (*Rumex Patientia.*), pea, (*Pisum sativum*), peanut, (*Arachis hypogæa*), pennyroyal, (*Mentha Pulegium*), peppermint, (*Mentha piperita*), and peppers, (*Capsicum annuum*).

How to Collect and Preserve Botanical Specimens. J. M. Macoun. (Ottawa Nat. iii. 146-149.)

The subject matter of this article was delivered as a popular lecture.

Hypericum Kalmianum. Garden and Forest, iii. 112, fig. 24.)

Kansas Grasses.—An artificial Key to the. W. A. Kellerman. (Trans. Kan. Acad. Sci. xi. 87-101.)

Fifty-six genera including 170 species are enumerated and classified. Wherever there is a common or local name for the species it is appended—an addition of no small interest and value.

Mosses Collected in the Neighborhood of Ottawa.—List of. J. M. Macoun. (Ottawa Nat. iii. 149-152, continued.)

Forty-nine additions to the previous list are here enumerated, with dates and localities.

Nottrocheilus, eine neue Scrophularineen Gattung aus Brasilien, nebst einem Anhange ueber zwei neue Tourvalia Arten. L. Radlkofer (Sitzungsb. k. Bayr. Akad. Wiss. 1889.)

Oaks.—The Waverly. (Garden and Forest, iii. 85, 86, illustrated.)

An account and representation of a remarkably fine group of old trees, mostly *Quercus alba* near the village of Waverly, just outside Boston. A plea is made for the purchase of the land and preservation of the trees.

Pentstemon Menziesii, var. Scouleri. (Gard. Chron. vii. 204, fig, 33.)

Peridial cell characters in the classification of the Uredineæ. H. J. Webber. (Am. Nat. xxiv. 177, 178.)

Peronosporaceæ.—A List of the Kansas Species of. W. T. Swingle. (Trans. Kan. Acad. Sci. xi. 63-87.)

A list of 32 species with both plants and index.

Red Cedar—Savin. J. T. Rothrock. (Forest Leaves. ii. 148, 149, illustrated.)

Contains a full page picture of a large tree of *Juniperus Virginiana* at Wawa, Pa.

Rosa foliolosa. (Garden and Forest, iii. 100, fig. 22.)

Rosin Weed.—An Examination of the resinous Exudation of. L. E. Sayre. (Trans. Kan. Acad. Sci. xi. 103.)

The author states that the gum from *Silphium laciniatum* is completely soluble in chloroform and benzole, which, upon evaporation, leave a transparent residue. Its probable value in microscopic mounting is mentioned.

Sapotaceæ a Dr. A. Glaziou lectæ. C. Rannkiaer. (Videns. Medd. Naturh. Forening Kjobenhavn. 1889.

New species are described in the genera *Mimusops, Sideroxylon, Lucuma* and *Chrysophyllum.*

Stipules in Certain Dicotyledonous Leaves of the Dakota Rocks—On the Discovery and Significance of. F. H. Snow. (Trans. Kans. Acad. Sci. xi. 33-35, illustrated).

The significance refers to the fact that the stipules of these Dakota fossil leaves have a prevailing unilateral position as distinguished from the modern bilateral arrangement, and that they show a gradual change from the solitary entire form to the bilateral pair. Leaves of *Betulites Vestii*, var. *obtusa*, var. *inæquilateralis*, var. *latifolia*, and var. *subintegrifolia* and *Viburnum Dakotense*, var. *longifolium* and var. *ovatifolium*, are figured.

The New American Botanist and Florist. By Alphonso Wood. Revised and edited by Oliver R. Willis. (8vo. pp. 220 + 449. New York, 1889).

The "new" part of this work consists of Dr. Willis's revision of the Lessons, already noted in this journal, bound in with the systematic portion of the old "Botanist and Florist," and as the former are printed in much larger type than the latter, the book has an unequal appearance, and we must add, an unequal value. We think it was hardly fair to call it "new"; we wish it were otherwise. However, the great merit and value of Professor Wood's methods of description have become so widely recognized that the book will remain valuable for many years. There are numerous species that might be added (we note about a dozen in the first 30 pages). There are numerous mistakes that might be corrected, and the nomenclature is bad, although in this re-

spect it is perhaps no worse than the recent edition of its rival manual. Giving, as it does, so large a number of the cultivated plants, with such simple and correct keys to all the species and orders, and extending over the whole eastern United States, it is to-day the most useful school book of its kind in the market.

N. L. B.

Uredineæ—On the Hypophyllous, Epiphyllous, or Amphigenous Habits of. H. J. Webber. (Am. Nat. xxiii. 911-912).

Uredineæ—Peculiar. H. J. Webber. (Am. Nat. xxiv. 178-180 pl. vii).

The author here describes and figures abnormalities in the spores of *Puccinia flaccida, P. Prenanthis, P. Sporoboli, P. Tanaceti*, var. *Actinellæ, P. Jonesii, P. nigrescens* and *Uropyxis Petalostemonis.*

Viburnum pubescens. (Garden and Forest, iii. 124 f. 26).

Zephyr Flowers. (Garden, xxxvii. 154-155, pl. 740 and fig).

A colored plate of *Zephyranthes candida* and figure of *Z. Atamasco* are given.

Proceedings of the Club.

The regular meeting was held at Columbia College, Tuesday evening, March 11, 1890, the President in the Chair and seventeen persons present. Dr. Britton was elected Secretary pro tempore.

Dr. Newberry read a letter from Mrs. Maria L. Daly, offering to contribute towards the establishment of a botanical garden in Bronx Park, and to further the project in other directions. The subject was remarked upon at length by Dr. Newberry and Judge Brown.

Judge Brown announced the death of Professor Joseph Schrenk, an active member of the Club, which occurred on the morning of March 10, after an illness of several weeks. He remarked on Professor Schrenk's valuable and extended work in Botany and Pharmacy, and his long-continued services to the Club and other institutions. Remarks were also made by Dr. Newberry and the following resolutions were unanimously adopted:

Resolved, That the Torrey Botanical Club has learned with the deepest regret of the death of Professor Joseph Schrenk, one of its most honored and beloved members. During more than fifteen years past, not merely by his active co-operation in the meetings and scientific work of the Club, by his numerous and valuable papers giving the results of his acute and delicate original research, but also by his pure and lofty character as a man, the soul of honor, gentleness and truth he has endeared himself to the hearts of our members.

Resolved, That the profound sympathies of the Club be extended to the family of the deceased and a copy of these resolutions be sent them.

Dr. Newberry read extracts from letters recently received from Dr. Northrop, written at Nassau, Bahama, stating that some 300 species of plants had already been obtained, and that Mrs. Northrop and himself were about leaving Nassau for the island Andros.

The second March meeting was held March 26th in Hamilton Hall, the President in the chair and twenty-four persons present.

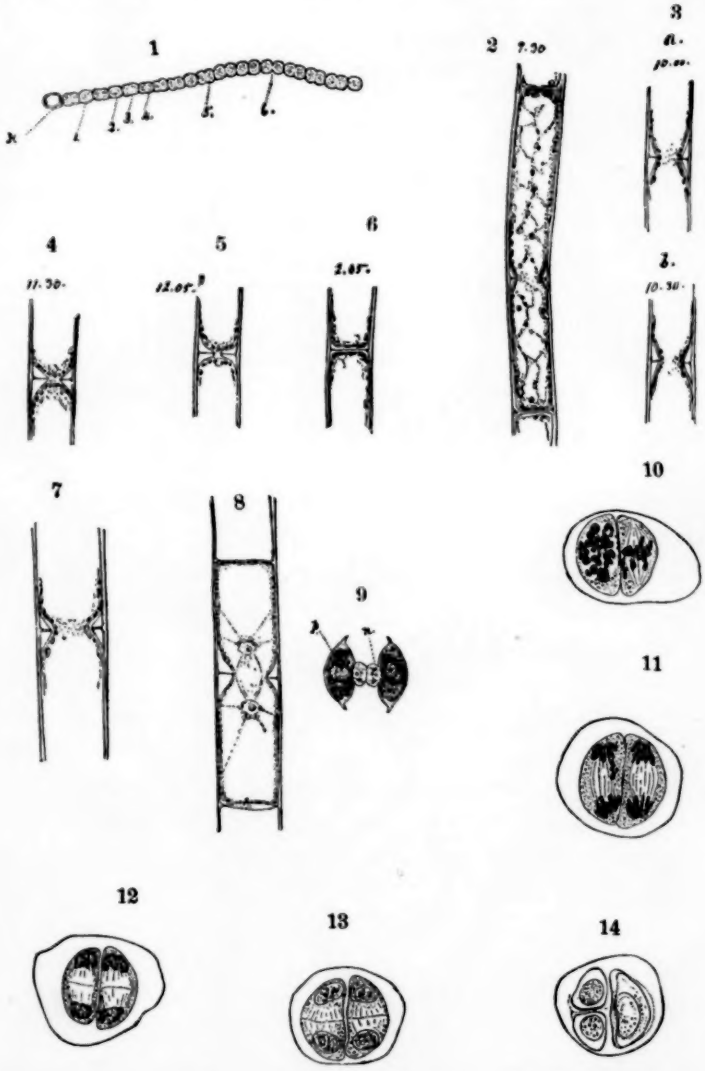
Mrs. Maria L. Daly and Miss Henrietta P. Johnson were elected Active Members.

Miss A. M. Vail was elected Associate Editor to fill the vacancy caused by the death of Prof. Schrenk, and Mr. Henry Ogden was appointed to fill the vacancy on the Comimittee on Admissions.

Miss Gregory announced the probable discovery of zöospores in *Oscillaria*, and remarked on the galls found on *Vaucheria*.

The paper of the evening "Notes on Flora of Rhode Island," by Prof. W. W. Bailey then followed.

Death of Dr. Thurber.—Just as this BULLETIN goes to press, the tidings are received of the death of Dr. George Thurber, an ex-president of the Club. A full account of his life and works will appear in an early number.



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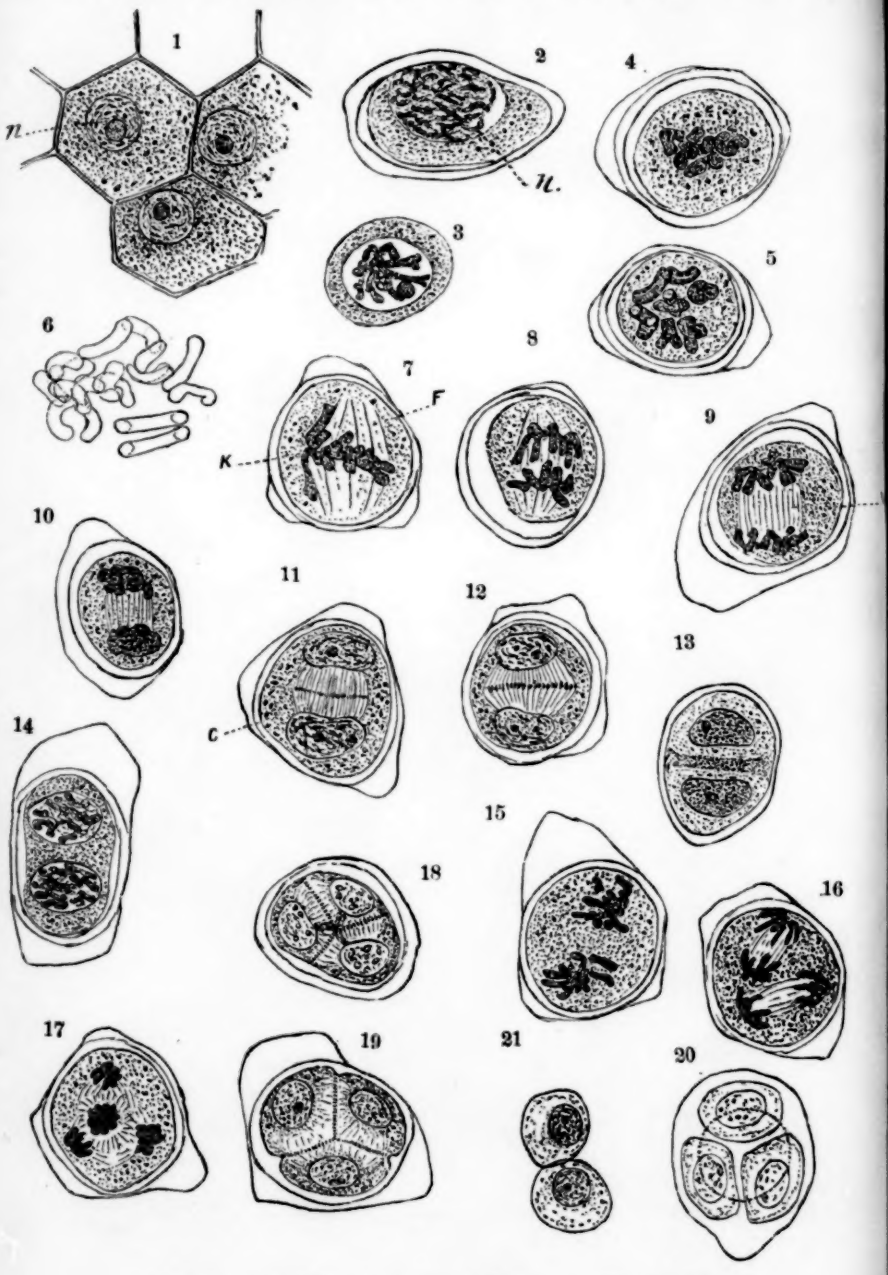

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